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ENVIRONMENTAL IMPACT ASSESSMENT FOR BUDGET HOTEL IN LANGKAWI, MALAYSIA

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ABSTRACT

The island of Langkawi in Malaysia is a popular destination for local and international holiday-makers. In continuing the tourism development in Langkawi, the Tune Hotels Ptd. Ltd. planned to build a low cost budget hotel in Langkawi. An Environmental Impact Assessment (EIA) study is a mandatory requirement under the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987 for the project prior to the commencement of the project. Under the legislation meant to protect and conserve the environment, approval for the proposed project is only granted upon the Preliminary EIA study being completed and approved by the Director General of the Department of Environment (DOE), Malaysia. The Project Proponent has engaged Ecotone Environmental Management Ptd. Ltd. to conduct a Preliminary EIA study and provide an assessment of potential impacts of the proposed project activity is likely to have on the environment and to propose appropriate mitigation measures to minimise or nullify the significant potential impacts, in accordance with the guidelines issued by the Department of Environment, Malaysia. This paper discusses briefly the Preliminary EIA carried out for the budget hotel project in Langkawi island of Kedah State in Malaysia.

Keywords: Environmental Impact Assessment, Environmental Quality, Environmental Monitoring, Environmental Auditing, Langkawi.

1.0 INTRODUCTION

The island of Langkawi has always been a popular destination for local and international holiday-makers. In continuing the tourism development in Langkawi, Tune Hotels Ptd. Ltd. planned to build a budget hotel called the "Tune Hotel" at Lot 2085 consisting of 1.638 acres in Pantai Tengah, Langkawi. The primary advantage in developing the budget hotel at this location is that it will enhance the tourism industry in Langkawi as a premier tourist destination with the end result of creating an enduring economic sector to diversify Malaysia's economy and reduce its reliance on resource based economy.

2.0 THE GOVERNMENT REQUIREMENT

It has been the Malaysian Government's commitment to ensure that a balanced approach in its efforts in promoting socio-economic development and the management of natural resources and environmental quality. Emphasis has been stressed on the needs of environmental consideration for inclusion as a required factor in decision making at the planning stage for all major development projects. In recognizing the need to adopt a comprehensive legislation in the management of environment, the Malaysian Government implemented the Environmental Quality Act of 1974. However, this act had little jurisdiction over forestry operations, land clearing and development, agricultural activities and mining, all of which have contributed towards the degradation of the

environment. As a result, the Environmental Quality Act of 1974 had to be amended in 1985, gazetted on 9th January 1986 and finally implemented on 1 April 1988. This amendment calls for Environmental Impact Assessment reports to be prepared for various prescribed activities developed by the Department of Environment (DOE) of Malaysia. The amendment contains provisions for the incorporation of measures to prevent, reduce or control adverse environmental impacts during the design, construction and operation stages of the project. The proposed development budget hotel project is classified as a Prescribed Activity under Section 34A of the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order of 1987. Hence, an Environmental Impact Assessment is legally mandatory for the proposed project. A completed EIA report therefore, is required to submit to the Director-General of DOE for evaluation and approval prior to commencement of the project.

3.0 PROCEDURE AND METHODS

The EIA study will begin with a scoping meeting with relevant project management team to identify the major components of the project and data availability regarding the project details. A site reconnaissance survey will be conducted to assess the existing environment, including general land use, economic activities around the area, natural resources, sensitivity of the project to local communities, benefit of the project, etc. The Terms of Reference (TOR) of EIA study will be discussed with the project team such that any areas of ambiguity, which may have existed prior to the initiation of the project. Subsequently, the baseline environmental parameters like the air quality, noise, vibration and water quality will be monitored at selected locations in and around 3 km radius of the proposed project site, which may be influenced by the project development. Secondary information that is available from various sources could be of importance for the proposed project, like data from Malaysian Meteorological Services Department, local structure plans and other published documents will be obtained to cover other essential elements in the study. At the same time, the project description detailing the various activities, conceptual or final development plan and construction schedule will be sought from the client. Then, the project activities will be superimposed over the existing environment to predict the significant impacts that likely to occur. This will include quantitative and qualitative description of the changes to the natural environmental settings. The consultant shall refer these changes with those standards and guidelines established by the DOE or other agencies for compliance. Based on this assessment, environmental safeguards or mitigating measures for both the construction and operational phases of the project will be developed to minimize the potential impacts. These will be developed in close association with project engineering team. The EIA study report prepared will clearly outline the nature and details of the proposed project, existing baseline data, the environmental mitigation and management strategies to be adopted and the likely environmental and economic implications due to the project.

4.0 CONDUCTING ENVIRONMENTAL IMPACT ASSESSMENT

4.1 Statement of Needs

The islands of Langkawi is a major tourist hub in Malaysia. Tourist arrivals in Langkawi recorded approximately 2.24 million tourists (1.52 domestic tourists and 713,874 foreign tourists) in 2006 as compared to 1.06 million in 1999. To provide an opportunity to further promote growth in the tourism industry, the project proponent has proposed the development of the budget hotel at Pantai Tengah in Langkawi in the state of Kedah Darul Aman. The primary advantage in developing the budget hotel at this location will enhance tourism industry in Langkawi as a premier tourist destination with the end result of creating an enduring economic sector to diversify Malaysia's economy and reduce its reliance on resource based economy. The area is also identified for tourism development in the Langkawi Structure Plan and several hotels and resorts are already there at the proposed project site.

4.2 The Project Description

The concept of budget hotel as an affordable accommodation provider without compromising the comfort standard is extended into a resort setting of Langkawi. It is located across from the main road and just next to the existing hotels. The rooms shall over look the beach or swimming pool amidst manicured lawns inter dispersed with swaying palms. This idea of the boutique hotel is essentially designed with a unique central core which interconnects the two wings on the east and south side. The core is further enhanced by a void to bring light into the main point of arrival acts as a visual and physical anchor for this hotel. Located within are the main administration and front of house areas at the ground floor of the centre core. The naturally ventilated lobby has a tropical setting overlooking the idyllic garden and pool. Visually the facade is dynamic in a way that the balconies are angled to capture the sunlight and provide a distinct feature to the outlook of the building especially on the northern face as one approach the main entrance of the centre core. The facade is further enhanced on the circular face of the core with horizontal fins and expanded metal cladding giving the overall hotel a trendy, fun and active outlook in line with the image of the Tunes Hotel brand as a dynamic holiday establishment for all. Layouts of the rooms are arranged with the wings wrapping the pool for the guests to face and take advantage of the pool view and overlook the retail areas. Other guest rooms are outward looking with open air balconies to capture the fresh sea breeze and sunlight further enhancing the experience of relaxation in the 'sun and sea'. The cleverly organized rooms are packed with the essential amenities for travellers whether they are a single, double or family unit who can book for the available adjoining rooms. The retail outlets are designed to be physically separated from the hotel complex in terms of operation and management. The hotel mainly practices an open concept with free access for the guests and also external patrons to make use of the retail food and beverage outlets. Each outlet shall be operated separately by various providers with typical Malaysian cuisine, grab and go sandwich bars and more formal dining.

4.3 Project Options

Though the project options are limited in terms of site selection and technological options, however, with the intention of assessing the most appropriate option(s) for the development of the proposed budget hotel project, the criteria such as (a) Environmental acceptability; (b) Social and economic value in terms of employment, social impacts and contribution to the economy; (c) Land use compatibility and (d) Relevance to Government policies and development strategies for the area, are identified and followed.

4.3.1 Site selection and suitability

With reference to the above criteria, the project site was judged to be suitable for the construction of the hotel. The site is currently an open, levelled, and grassy field, which ensures minimal land clearing activities. The project site is owned by the project proponent. Furthermore, the project site is situated along the popular Pantai Tengah area surrounded by several hotels, resorts and tourism related activities, ensuring land use compatibility with its neighbours. Tourism has become a major industry in Langkawi, and as such, the hotel will further expand the tourism industry in Langkawi, in line with the local development strategy for the area.

Figure 1: Project Location and Baseline Monitoring Stations

4.3.2 Hotel development options

The concept of budget hotel as an affordable accommodation provider without compromising the comfort standard is extended into a resort setting of Langkawi. It is located across from the main road and just next to the existing Lanai Beach Resort and Holiday Villa hotels. The project concept is based on the "5-star living experience with a 1-star price". The hotel will have amenities such as a swimming pool as well as commercial and retail spaces. Tourist can expect to have high quality living experience without paying a hefty bill for it. The main idea is to provide quality but cheap accommodations to help promote tourism in Langkawi.

4.3.3 No project option

To ignore the development of the proposed project will have an impact on the tourist development, generally in Malaysia and particularly in Langkawi. This would be incompatible with the State government's objective to further enhance the economic status of this part Kedah state. The 'No Build' option would probably result in the following negative impacts (a) Deny tourists important and necessary infrastructures (b) Restriction of additional revenue through which the state authorities could derive and further expand their economic base (c) Inhibit potential avenues for additional investment and employment opportunities and associated spin-off opportunities (d) Adversely affect the high potential of the overall tourism industry in Langkawi.

4.4 Baseline Study for Existing Environment

The proposed project site covers an area of approximately 1.638 acres. The project site is currently an undeveloped green field area. There is no prior development on the site. It is basically a grassy field with some vegetation on its borders. In the north is a Federal Rest House; while on the south is a secondary forest with a pond which is covered with aquatic vegetation. Bordering the east is Jalan Teluk Baru which runs north, parallel to Pantai Tengah. West side there is the Lanai Beach Resort and the beautiful beach. The topography of the site is generally flat and gently sloping down to the west towards the shoreline (Pantai Tengah). The project site is located approximately 1 meter to 3 meter above the mean sea level. The geology of the proposed project site and immediate surroundings is characterised by the Singa Formation. The lithology of the formation is comprised of dark coloured shale and siltstone. This type of material is widely distributed in the south-western part of the Langkawi islands. At the proposed project site, metamorphosed shale and siltstone is observed. The weathering rock has provided a significant layer of soil which supports thick and healthy vegetation.

The tides along the island of Langkawi are of the semi-diurnal type (twice daily), where there are two tidal cycles with one high tide and one low tide each day. The tidal levels are extracted from the Tide Prediction Table for 2009 for two standard ports at Teluk Ewa and Kuah. From the table, tides along the Pantai Tengah coastline ranged between 0.53 ACD to 3.56 ACD. The deepwater wave statistics show that more than 70% of the waves are less than 1.75m and waves higher than 2.5m accounts for only 1%. Wave heights between 1.75 m and 2.75m has about 5% occurrence while the mean wave period is between 5 to 8 seconds. The water quality monitoring is essential part of the environmental assessment and therefore, monitoring stations are established within 3 km radius of the project site and approximately 100 meters from the coastline. The marine water quality sampling and testing was carried out at both high and low tide. A total of 8 water samples were collected from the 4 stations. At all stations, samples were analyzed for all 23 parameters specified in Standard B under the Environmental Quality (Sewage and Industrial Effluent) Regulations, 1979 plus E. coli, dissolved oxygen, turbidity and salinity. Marine water data thus obtained was compared against the Interim National Marine Water Quality Standards (INMWQS). There is some variation in marine water quality between locations but most of the data are well within INMWQS including the heavy metals. There are some differences between water quality parameters during high and low tides.

At the Langkawi Airport Meteorological Station, the mean daily temperature varied from 26.6°C to 29.3°C from 2003 – 2008. The mean monthly rainfall ranged from 151.9 mm to 263.9 mm. The number of rain days a month ranged from none 0 to 27 days. Wind speeds were most prevalent at 0.3 m/s to 3.3 m/s. Maximum wind speed recorded were 8.0 m/s to 10.7 m/s, most common during October. The air pollutants that are relevant and important to the proposed project are Total Suspended Particulate (TSP), Particulate Matter (PM_{10}), Sulphur Dioxide (SO_2), and Nitrogen Dioxide (NO_2). The TSP and PM_{10} concentrations monitored at two stations were within the Recommended Malaysian Air Quality Guidelines of 260 $\mu g/m^3$ and 150 $\mu g/m^3$, respectively. The TSP levels recorded were 124 and 110 $\mu g/m^3$, whilst PM_{10} was 90 - 95 $\mu g/m^3$. The NO_2 and SO_2 concentration was not detected at all the stations and far below the DOE recommended limit of 320 $\mu g/m^3$ and 105 $\mu g/m^3$. The equivalent noise levels (Leq) monitored from 21st – 23rd November 2008 at the four stations indicates that noise varied from 57.3 to 62.1 dB(A). The noise levels recorded were all within the DOE daytime noise limit of 65 dB (A). Sudden increase in noise level occasionally during the daytime may be due to vehicle movement along the adjacent main road. The background noise for this location is generally high due human voices and sea waves.

There is no wetland or freshwater or terrestrial ecosystems of significant importance within 3 km radius of the project site. The marine habitats include the beach front, the intertidal zone and the islands, Pulau Rebak Besar and Kecil at the north of the project area and Pulau Tepur at the south end of the project area. The main consideration on the biological environment would be plankton and the fisheries within Pantai Cenang and Pantai Tengah marine waters. Generally, the shallow marine waters of Langkawi are reasonably rich in plankton and are important for artisanal (traditional) fisheries.

Report from the "Kajian Kependudukan dan Sosio-ekonomi Pulau Langkawi, 1999" conducted by LADA shows that in 1999 about 50% of the locals in Langkawi earned an average monthly household income raging from RM 500 to RM 1 000 whilst another 28% earned less than RM 500 per month. However, increased participation by some members of the local population in the service and hospitality sector since then has pushed the average monthly household income raging from RM 1 000 to RM 1 500. Kuah recorded an average monthly household income of RM 1 524 whilst, the study area (Mukim Kedawang) recorded mean monthly household income of RM 1 250. The project site is located at Pantai Tengah, which is a well known tourist destination in Langkawi. There is already a multitude of hotels, resorts, restaurants, shops, boutiques and other commercial activities in Pantai Tengah. It has all the necessary infrastructure and utility including roads, water supply, electricity supply and telecommunications. Pantai Tengah is a popular tourist spot and therefore infrastructure development in the area is well established.

In Pulau Langkawi, the solid waste management including collection of solid wastes and disposal of solid wastes falls under the jurisdiction of Majlis Perbandaran Langkawi (MPL). This includes both residential and commercial establishments. The collection of solid wastes from various locations is undertaken by waste collection vehicles owned by Majlis Perbandaran Langkawi and also private owners, mainly the hotels. Sewage treatment services in Langkawi are managed by Indah Water Konsortium (IWK). There is a sewage treatment plant located at Jalan Teluk Baru, Pantai Tengah with a design capacity of 10 000 PE. The sewage treatment plant utilises the extended aeration activated sludge system to treat sewage.

4.5 Potential Significant Impacts and Proposed Mitigation Measures

The principal project activities that will be carried out during the construction and operational phases and the expected impacts on the environment due to the development of budget hotel in Langkawi are discussed in detail. The aim is to highlight specific activities that may have an impact on the existing environment so that appropriate mitigation and abatement measures can be instituted. During the construction phase the main environmental impacts expected are increase in noise level and vibration due to construction activities and vehicle movements, soil erosion and sedimentation due to earthwork and land clearing activities, increased traffic and potential accidents due to transportation of construction materials and increase in solid and liquid wastes from the workers camps. During the operation phase of the hotel, the main impacts are increase in sewage and solid waste and its management, increase in traffic and influx of tourists to the area. Several mitigation measures are proposed which are mainly to prevent soil erosion and surface runoff to control suspended solids and nutrient runoff to coastal areas and to minimise noise and vibration due to transportation activities. The mitigation measures proposed during operation phase are mostly to minimise the impacts related to noise, solid and sewage management, traffic and public safety due to increased traffic and tourists.

4.6 Residual Impacts

The residual impacts are defined as potentially significant long-term environmental impacts which remain even after mitigating measures have been introduced. These impacts are considered to be permanent and long-term, which might occur during the construction and operational phases of hotel and are likely to affect the three major environmental components, i.e. physical, biological and human environment. These residual impacts require closer investigation and are managed with well-defined environmental monitoring programme which should be implemented during the construction and operational phases of the project.

4.7 Environmental Management Plan (EMP)

A comprehensive Environmental Management Plan (EMP) for the hotel shall be prepared to effectively manage all potential impacts identified in this report and monitor the project activities and the implementation of mitigation measures at the site during both construction and operational phases

of the project. This is to ensure environmental objectives are met and all activities relating to the implementation of the project are carried out in an environmentally sustainable manner. The document will provide specific guidelines on steps that need to be performed by the project proponent to ensure that mitigation measures recommended in this report, the EIA approval conditions and any other requirements imposed by the DOE are implemented.

4.8 Project Abandonment

Project abandonment means when the whole project or a part of the project has to be abandoned for specific reasons. Abandonment could happen at any stage of the proposed project. Abandonment during the planning stage would not result in any significant financial losses other than costs incurred for undertaking various studies and planning. Abandoned structures and machinery could be a health hazard to the public and cause negative impacts to the surrounding environment if left exposed, such as soil erosion and surface run-off.

5.0 CONCLUSION

The Preliminary Environmental Impact Assessment study has attempted to identify and assess the environmental impacts with respect to physical, biological and human environment due to the development of Tune Hotel at Pantai Tengah, Langkawi, Kedah. The deductions and interpretations made here are based on the best available information and the studies carried out specifically for the project as outlined in the various chapters of the EIA report.

ACKNOWLEDGMENTS

We like to express our sincere thanks to Tune Hotel Sdn. Bhd. for allowing us to publish salient points of the EIA report prepared for their project. Special thanks to Mr. Mark Lankester, Ms. Sharon Ruba and various consultants involved in the EIA study like Dr. Harinder Rai Singh and Mr. Abdul Wahid Ghazali for their support and valuable contributions.

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